CLAIMS

1. A central vacuum unit comprising:

a housing;

a vacuum inlet;

a stale air outlet;

a fresh air inlet;

a fresh air outlet;

a vacuum fan for drawing dirt laden stale air through the vacuum inlet and out through the stale air outlet;

a fresh air fan for drawing fresh air through the fresh air inlet and out through the fresh air outlet;

a waste collection chamber for collecting debris carried by the stale air entering the vacuum inlet; and

a heat exchanger for transferring heat energy between the stale air and the fresh air.

2. The central vacuum unit of claim 1 wherein the vacuum inlet is adapted to be connected to a cleaning implement.

3. The central vacuum unit of claim 1 wherein the fresh air fan has a low speed mode and a high speed mode.

4. The central vacuum unit of claim 1 further comprising an air filter in communication with at least one of the vacuum inlet and the fresh air inlet.

5. The central vacuum unit of claim 1 further comprising a stale air inlet, and a stale air fan wherein the stale air fan draws stale air through the stale air inlet.

6. The central vacuum unit of claim 1 further comprising a dividing wall separating the stale air from the fresh air.

7. The central vacuum unit of claim 1, wherein the heat exchanger is a rotary air-to-air heat exchanger.

8. The central vacuum unit of claims 1 further comprising a stale air inlet, wherein the vacuum fan functions also as a stale air fan and draws air through the stale air inlet and out through the stale air outlet.

9. A central vacuum assembly comprising:

a vacuum cleaning apparatus;

a ventilation apparatus;

a heat exchanger for transferring heat energy between air in the vacuum cleaning apparatus and air in the ventilation apparatus; and

a fan for circulating air within at least one of the vacuum cleaning apparatus and the ventilation apparatus.

10. The central vacuum unit of claim 9, wherein the heat exchanger is a rotary air-to-air heat exchanger.

11. The central vacuum unit of claim 9 further comprising an air filter in communication with the air.

12. The central vacuum unit of claim 9 wherein the fan operates at a first speed in a ventilation mode and the fan operates at a second speed in a vacuum mode, the second speed being higher than the first speed.

13. A central vacuum unit comprising:

a housing;

a dividing wall within the housing defining a stale air chamber and a fresh air chamber;

a stale air inlet in the housing in communication with the stale air chamber for connection to an interior environment;

a vacuum inlet in the housing in communication with the stale air chamber for attachment to a cleaning device;

a stale air outlet in communication with the stale air chamber for connection to an exterior environment;

an exhaust filter within the stale air chamber separating the stale air outlet from the stale air inlet;

a vacuum filter within the housing for removing particulate matter from air drawn in through the vacuum inlet;

a stale air fan within the stale air chamber for drawing stale air through the stale air inlet, through the exhaust filter, and out through the stale air outlet;

a vacuum fan for drawing dirt laden air in through the vacuum inlet and through the vacuum filter;

a fresh air inlet in communication with the fresh air chamber for connection to the exterior environment;

a fresh air outlet in communication with the fresh air chamber for connection to the interior environment;

a fresh air filter within the fresh air chamber separating the fresh air outlet from the fresh air inlet;

a fresh air fan within the fresh air chamber for drawing fresh air through the fresh air inlet, through the fresh air filter, and out through the fresh air outlet;

a waste collection chamber for collecting debris carried by the dirt laden air entering the vacuum inlet; and

a rotary air-to-air heat exchanger extending into the stale air chamber and the fresh air chamber for transferring heat energy between the stale air and the fresh air.

14. The central vacuum unit of claim 13 wherein the stale air fan and fresh air fan operate at a first speed in a ventilation mode and the stale air fan and fresh air fan operate at a second speed in a vacuum mode, the second speed being higher than the first speed, and wherein in the vacuum mode the vacuum motor operates to create a vacuum to draw dirt laden air into the vacuum inlet.

15. The central vacuum unit of claim 13 further comprising:

a ventilation motor for powering the stale air fan and the fresh air fan; and

a vacuum motor for powering the vacuum fan.

16. The central vacuum unit of claim 13 further comprising:

a ventilation motor for powering the fresh air fan; and

a vacuum motor for powering the vacuum fan and the stale air fan.

17. A central vacuum cleaning system comprising:

a central vacuum unit comprising a vacuum cleaning apparatus, a ventilation apparatus, a heat exchanger for transferring heat energy between air in the vacuum cleaning apparatus and air in the ventilation apparatus, and a fan for circulating air within the central vacuum unit;

a vacuum duct in fluid communication with a vacuum inlet of the vacuum cleaning apparatus; and

a plurality of vacuum ports in fluid communication with the vacuum duct, the plurality of vacuum ports being connectable to cleaning implements.

18. The system of claim 17, wherein the fan operates at a first speed in a ventilation mode and the fan operates at a second speed in a vacuum mode, the second speed being higher than the first speed.

19. The system of claim 17, wherein the ventilation apparatus is in fluid communication with the vacuum cleaning apparatus.